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- (58) Field of search C5D

(54) Detergent cosmetic compositions

- (57) Detergent composition comprise in a cosmetically acceptable aqueous medium:
 - a) a soap.
- b) a silicone cationic polymer consisting of a polysiloxane in which one or more of the silicon atoms are substituted with an aliphatic amino group,
 - c) a cationic surfactant, and
- d) a cationic polymer which is a cationic polysaccharide or a cationic cyclopolymer. The composition is especially formulated as a shampoo.

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SPECIFICATION

Detergent cosmetic compositions

5 The present invention relates to new stable detergent cosmetic compositions containing a soap and cationic compounds.

It is well known to use, in detergent cosmetic compositions such as shampoos, cationic surfactants or cationic polymers. These cationic surfactants generally contribute to imparting properties of disentangling, softness and sheen to the hair, but they tend to make the hair lank.

Cationic polymers also possess advantageous properties and contribute generally to improving the disentangling properties. In certain cases, however, the use of such polymers gives the hair excessive texture and body, thereby producing a coating and making the hair hardened or slimy.

Furthermore, anionic surfactants, and the use thereof in detergent cosmetic compositions such as shampoos, are known.

15 In multi-stage washing processes, use has also been made of shampoos containing an anionic surfactant, followed by a rinsing composition or "rinse" containing one or more cationic compounds.

It has, however, been found that it was not possible to combine anionic surfactants with cationic compounds without problems being encountered, since a combination of this kind generally gave rise to products which were insoluble in water or unstable as a result of the incompatibility of the anionic surfactants with the cationic compounds.

The Applicant Company has discovered that it was possible to prepare a single, stable, detergent and treating composition which did not possess the abovementioned disadvantages by combining, in one and the same composition, a particular anionic surfactant chosen from soaps and a combination of cationic compounds.

The subject of the invention is hence detergent cosmetic compositions which are stable on storage and contain, in an aqueous medium, a soap and cationic compounds.

The subject of the invention is also a washing process employing such compositions.

Further subjects of the invention will emerge on reading the description and examples which follow.

The detergent cosmetic composition, stable on storage, according to the invention, is essentially 30 characterised in that it comprises, in a cosmetically acceptable aqueous medium, a soap, a silicone cationic polymer, a cationic surfactant and a cationic polymer chosen from cationic polysaccharides and cationic cyclopolymers.

The soaps used according to the invention are chosen from alkali metal salts, alkanolamine salts (such as monoethanolamine, diethanolamine, triethanolamine, 2-amino-2-methyl-1-propanol, 2-amino-2-methyl-1,3-35 propane-diol and triisopropanolamine salts) of C₁₂-C₁₈ fatty acids in which the fatty chain is saturated or unsaturated. Among fatty acids, lauric, palmitic or oleic acids may be mentioned more especially.

The soaps which are especially preferred are the triethanolamine or 2-amino-2-methyl-1-propanol salts of lauric, palmitic or oleic acid.

The silicone cationic polymers used according to the invention are polysiloxanes in which one or more of the silicon atoms in the chain bear(s) an aliphatic amino group in which the amine group is primary, secondary, tertiary or quaternary. The expression "aliphatic amino" n encompasses amino alkyl or amino(hydroxyalkyl) radicals in which the alkyl chain may be interrupted by nitrogen or oygen atoms.

Silicone cationic polymers are described, in particular, in the CFTA dictionary (3rd edition 1982, published by The Cosmetic, Toiletry and Fragrance Association, Inc.).

45 Among preferred silicone cationic polymers, there may be mentioned the polymer corresponding to the formula:

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in which x and y are integers which depend on the molecular weight, the average molecular weight being approximately between 5,000 and 10,000. This polymer is also known as "amodimethicone".

Other silicone cationic polymers which can be used according to the invention correspond to the formula:

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$$(R_1)_a G_{3-a} - Si - (-OSiG_2)_n (OSi G_b(R_1)_{2-b})_m O - Si G_{3-a}(R_1)_a$$

in which G is chosen from the group consisting of hydrogen, phenyl, OH, C_1 - C_8 alkyl and preferably methyl; a denotes 0 or an integer from 1 to 3, and preferably equals 0;

b denotes 0 or 1 and preferably equals 1; the sum n+m is a number from 1 to 2,000 and preferably from 50 to 150, n being able to denote a number from 0 to 1,999 and preferably from 49 to 149 and m being able to denote an integer from 1 to 2,000 and preferably from 1 to 10;

 R_1 is a monovalent radical of formula $C_qH_{2q}L$ in which q is an integer from 2 to 8 and L is chosen from the groups

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$$-N(R_{2})CH_{2}-CH_{2}-N(R_{2})_{2}$$

$$-N(R_{2})_{2}$$
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$$-N(R_{2})_{3}A^{\ominus}$$

$$-N(R_{2})H_{2}A^{\ominus}$$

$$-N(R_{2})CH_{2}-CH_{2}-NR_{2}H_{2}A^{\ominus}$$
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0 in which R₂ is chosen from the group consisting of hydrogen, phenyl, benzyl, a saturated hydrocarbon radical, preferably an alkyl radical containing from 1 to 20 carbon atoms, and A[©] denotes a halide ion.

These compounds are described in greater detail in European Patent Application EP 95,238. An especially preferred polymer corresponding to this formula is the polymer known as "trimethylsilylamodimethicone" of formula:

Other silicone cationic polymers which can be used according to the invention correspond to the formula:

$$R_{4}-CH_{2}-CHOH-CH_{2}-N(R_{3})_{3}Q^{\ominus}$$
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$$(R_{3})_{3}-Si-O \xrightarrow{\int Si-O \xrightarrow{\Gamma} Si-O} Si-(R_{3})_{3}$$

$$(III)$$

50 in which R₃ denotes a monovalent hydrocarbon radical having from 1 to 18 carbon atoms, and more especially an alkyl or alkenyl radical such as methyl;

 R_4 denotes a hydrocarbon radical such as, preferably, a C_1 - C_{18} alkylene radical or a C_1 - C_{18} , and preferably C_1 - C_8 , alkyleneoxy radical;

Q3 is a halide ion, preferably chloride;

55 r denotes an average statistical value from 2 to 20, preferably from 2 to 8;

s denotes an average statistical value from 20 to 200, and preferably from 20 to 50.

These compounds are described in greater detail in US Patent 4,185,017.

A polymer of this class which is especially preferred is that sold by UNION CARSIDE under the name "UCAR SILICONE ALE 56".

The cationic surfactants used according to the invention are chosen from the compounds corresponding to the formula:

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in which:

(1) R_5 and R_6 denote methyl, R_7 and R_8 being able, in this case, to have the following meanings:

i) R_7 and R_8 denote a linear aliphatic radical, preferably an alkyl radical having from 12 to 22 carbon atoms, an aliphatic radical derived from tallow fatty acids, containing from 14 to 22 carbon atoms,

ii) or alternatively R₇ denotes a linear aliphatic radical and preferably an alkyl radical having 14 to 22 carbon atoms, and Ra denotes methyl or benzyl,

iii) or alternatively R_7 denotes a (C_{14} - C_{22} alkyl) alkylamidopropyl radical and R_8 denotes a (C_{12} - C_{16} alkyl) alkyl acetate group,

iv) or alternatively R_7 denotes a α -glucon-amidopropyl or C_{16} - C_{18} alkyl radical and R_8 denotes 10 hydroxyethyl,

 X^{Θ} denotes an anion such as a halide or methosulphate ion.

(2) R_5 denotes an alkylamidoethyl and/or alkenylamidoethyl group in which the alkyl radical containing from 14 to 22 carbon atoms is derived from tallow fatty acids, and R_6 and R_7 form with the nitrogen atom a 2-alkyl (derived from tallow fatty acids)-4,5-dihydroimidazole heterocyclic system,

R₈ denotes methyl

X[⊕] denotes a methosulphate ion.

(3) R_5 , R_6 and R_7 form with the nitrogen atom an aromatic heterocyclic system, R_8 denotes a C_{14} - C_{18} alkyl radical and X[©] denotes a halide ion.

Among preferred cationic surfactants, the following may be mentioned: dimethylstearylbenzylammonium 20 chloride, trimethyl(C20-C22 alkyl)ammonium chloride also sold under the name "GENAMINE KDM-F" by HOECHST, cetylpyridinium chloride, dimethyl(C₁₂-C₁₄ dialkyl)ammonium chloride, dimethyl-(ygluconamidopropyl)hydroxyethyl-ammonium chloride sold under the name "CERAPHYL 60" by VAN DYK, and dimethyldicetylammonium chloride sold under the name "NORANIUM M2 SH".

The cationic polysaccharides preferably used according to the invention have a molecular weight from 25 10,000 to 3 million, and are chosen from:

1) cellulose ether derivatives containing quaternary ammonium groups corresponding to the structural formula:

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in which R_{Cell} is the residue of an anhyroglucose unit, y is a number equal to between about 50 and about 20,000 and each R individually denotes a substituent which is a group of general formula:

 $-(C_aH_{2a}-O-)_m(CH_2-CH-O-_n-(C_bH_{2b}-O-)_p-(C_cH_{2c})_q-R^2$ 45

 $\begin{array}{c} |\\ \bigoplus\\ R_{11}-N\\ |\\ |\end{array} -R_9 \begin{array}{c} 1\\ V\\ \end{array} [X]V^-$

where a is an integer equal to 2 or 3;

b is an integer equal to 2 or 3;

c is an integer equal to 1 to 3;

55 m is an integer equal to 0 to 10;

n is an integer equal to 0 to 3; p is an integer equal to 0 to 10;

q is an integer equal to 0 or 1; R' is a hydrogen atom or a radical of formula:

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65 it being clearly understood that when q equals zero R' denotes -H;

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R₉, R₁₀ and R₁₁, taken individually, each represent an alkyl, aryl, aralkyl, alkylaryl, cycloalkyl, alkoxyalkyl or alkoxyaryl radical, each of the radicals R₉, R₁₀ and R₁₁ being able to contain up to 10 carbon atoms, it being clearly understood that when the radical is an alkoxyalkyl radical there are at least two carbon atoms which separate the oxygen atom from the nitrogen atom, and it also being clearly understood that the total number of carbon atoms present in radicals denoted by R₉, R₁₀ and R₁₁ is between 3 and 12;

 R_9 , R_{10} and R_{11} , taken together, can denote, with the nitrogen atom to which they are attached, one of the following radicals: pyridine, α -methylpyridine, 3,5-dimethylpyridine, 2,4,6-trimethylpyridine, N-methylpiperidine, N-methylpiperidine, N-methylmorpholine or N-ethylmorpholine;

X is an anion; V is an integer equal to the valency of X; the average value of n per anhydroglucose unit in this cellulose ether is between 0.01 and approximately 1, and the average value (m+n+p+q) per anhydroglucose unit in this cellulose ether is between approximately 0.01 and approximately 4.

The most especially preferred polymers are those corresponding to the formula (V) above in which a and b are equal to 2, q is equal to 0, m, n and p having the values mentioned above, R' denotes hydrogen and R_g , R_{10} and R_{11} denote methyl. The average values per anhydroglucose unit are from 0.35 to 0.45 for n and 1 to 2 for the sum m+p, X denotes chloride.

The preferred ethers according to the invention have viscosities at 25°C from 50 to 35,000 centipoises in aqueous solution at 2% strength by weight, measured by ASTM method D-2364-65 (Brookfield Model LVF viscometer, 30 rpm, spindle no. 2), and those especially preferred are those sold by Union Carbide Corporation under the tradenames "JR-125", "JR-400" and "JR-30M", which denote, respectively, a polymer of the type described above of viscosity equal to 125 centipoises, 400 centipoises and 30,000 centipoises; and LR such as LR 400 and LR 30M.

2) A cationic cellulose derivative prepared according to the process described in US Patent 4,131,576, which is a copolymer of cellulose or of a cellulose derivative grafted with a water-soluble quaternary ammonium monomer.

The water-soluble quaternary ammonium monomers are chosen, in particular, from (methacryloylethyl) trimethylammonium, (methacrylamidopropyl)trimethylammonium and dimethyldiallylammonium salts, and in particular the halides such as chlorides or the methosulphates.

The cellulose derivatives are preferably chosen from hydroxyalkylcelluloses such as hydroxymethyl- or hydroxyethyl- or hydroxypropylcelluloses.

30 The especially preferred products are those sold under the name "CELQUAT L 200" and "CELQUAT H100" 30 by National Starch.

The cyclopolymers used according to the invention have a molecular weight from 20,000 to 3,000,000, containing units corresponding to the formulae (X) or (X') below:

in which I and t are equal to 0 or 1 and I + t equals 1, R" denotes hydrogen or methyl, R and R' denote, independently of each other, an alkyl group having from 1 to 22 carbon atoms, a hydroxyalkyl group in which the alkyl group preferably has 1 to 5 carbon atoms, or a lower amidoalkyl group, and in which R and R' can form, conjointly with the nitrogen atom to which they are attached, heterocyclic groups such as piperidinyl or morpholinyl, as well as copolymers containing, in addition to the units of formula (X) or (X'), units derived from acrylamide or diacetone acrylamide, and Y denotes an anion such as bromide, chloride, acetate, borate, citrate, tartrate, bisulphate, bisulphate or phosphate.

Among the cyclopolymers defined above, those most especially preferred are the homopolymer of dimethyldiallylammonium chloride sold by MERCK under the name "MERQUAT 100" having a molecular weight below 100,000, and the dimethyldiallylammonium chloride/acrylamide copolymer having a molecular weight about 500,000 and sold under the name "MERQUAT 550" by MERCK.

These polymers are described, in particular, in French Patent 2,080,759 and its certificate of addition 2,190,406.

The especially preferred cationic polymers are cationic cellulose derivatives, the products sold under the name "CELQUAT L 200" and "CELQUAT H 100" and the known cyclopolymers, the products sold under the name "HERAUAT 550".

The soaps used in the compositions according to the invention are preferably present in proportions of between approximately 1 and 8% by weight relative to the total weight of the composition.

The silicone cationic polymers defined above are used in proportions of between approximately 0.05 and

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2.5% by weight.

The cationic surfactants are preferably used in proportions of between approximately 0.1 and 2% by weight relative to the total weight of the composition.

The cationic polymers are preferably used in proportions of between approximately 0.05 and 5% by weight 5 relative to the total weight of the composition.

The compositions according to the invention can also contain, according to a preferred embodiment, non-ionic surfactants, and in particular polyoxyethylenated or polyglycerolated fatty alcohols or alkylphenols.

The especially preferred cationic silicone polymers can be introduced in the compositions according to the 10 invention in the form of emulsions containing the silicone polymer together with the nonionic and cationic surfactants mentioned above.

One emulsion of this type which is especially preferred and used according to the invention consists of the composition sold under the tradename "DOW CORNING 929" (DC 929) cationic emulsion by DOW CHEMICAL COMPANY, which is a combination of:

15 a) "amodimethicone" defined above

b) trimethyl(tallow alkyl)ammonium chloride corresponding to the formula:

where R_4 denotes a mixture of alkenyl and/or alkyl radicals having 14 to 22 carbon atoms and derived from tallow fatty acids, and

c) polyoxyethylenated nonylphenol corresponding to the formula:

$$C_9H_{19}-c_6H_4 - (OC_2H_4)_{10}-OH$$

Another emulsion based on silicone cationic polymers according to the present invention is the composition sold under the name "DOW CORNING Q2 7224" by DOW CORNING, which is a combination of:

a) trimethylsilylamodimethicone defined above

b) polyoxyethylenated octylphenol of formula: $35 C_8H_{17} - C_6H_4 - (OCH_2CH_2)_nOH$ where n=40

c) polyoxyethylenated lauric alcohol of formula:

 $C_{12}H_{25}$ -(OCH₂-CH₂)_nOH where n = 6

d) glycol.

According to a preferred embodiment, the compositions according to the invention can contain, in addition, a fatty amine oxide corresponding to the formula:

$$R_{19} - \bigvee_{R_{20}} N \rightarrow O$$

in which R_{18} denotes an alkyl, alkenyl, C_{10} - C_{16} hydroxyalkyl or (C_{12} - C_{18} alkyl)amidopropyl group, and R_{19} and R_{20} , which may be identical or different, denote a methyl, ethyl, propyl, hydroxyethyl or hydroxypropyl group.

An especially preferred compound belonging to this family is dodecyldimethylamine oide (AMMONYX LO) or the (alkylamidopropyl)dimethylamine oxide in which the alkyl radical is derived from coconut fatty acids and which is sold under the name "AMINOXYD WS 25". These amine oxides are preferably present in proportions of between 0 and 10% by weight.

The compositions according to the invention preferably take the form of a liquid thickened to a greater or 55 lesser extent, gel form or cream form, or are packaged as an aerosol. They can contain, in addition to the combination defined above, different adjuvants customarily used in cosmetics such as perfumes, preservatives, sequestering agents, thickeners, emulsifiers, emollients, foam stabilisers, and acidifying or alkalinising agents.

The thickeners are chosen, in particular, from sodium alginate, gum arabic, cellulose derivatives such as 60 methylcellulose, hydroxymethylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, and guar gum or its derivatives. Thickening of the compositions can also be achieved by mixing polyethylene glycol and polyethylene glycol stearate or distearate, or by a mixture of phosphoric ester and amides.

These compositions can also contain, in addition, other cosmetically acceptable solvents such as mono-alcohols, polyalcohols, glycol ethers, and fatty acid esters, used alone or mixed. Among solvents, there may be mentioned, more especially, lower alcohols such as ethanol, n-propanol, isopropanol,

- water

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n-butanol, polyalcohóls such as ethylene glycol, diethylene glycol, propylene glycol, and glycol ethers such as mono- or diethylene glycol alkyl ethers. The compositions according to the invention can be used as shampoos, and are in this case applied on soiled, wet hair. After the hair is massaged, it is rinsed and the shampoo is generally applied once again, 5 followed by rinsing again with water. 5 These compositions can also be used as emollient shampoos, applied immediately after dyeing. The compositions according to the invention can finally be used as a vehicle for colouring products. In this case, the composition contains in addition direct dyes chosen from nitrated derivatives of the benzene series, azo, anthraquinone or naphthoquinone dyes, indoamines, indoanilines or indophenols. These dyeing compositions can contain, in addition, a solvent other than water in proportions of 0.5 to 10 10% by weight, chosen from lower alcohols, glycols and glycol ethers. The dyes in this embodiment are used in proportions varying between 0.01 and 3% by weight, and preferably between 0.05 and 1.5% by weight, relative to the total weight of the composition. These dyeing compositions are applied on soiled hair or on hair which has previously been washed, and after an exposure time, generally between 2 and 30 minutes and preferably 5 to 10 minutes, the hair is 15 rinsed. The examples which follow are intended to illustrate the present invention without in any way being limitative in nature. 20 Example 1 20 The following composition is prepared: - lauric acid 3 - 2-amino-2-methyl-1-propanoi 1.34 g 25 25 - coconut ethanolamide 1 g dimethylbenzylstearylammonium chloride in 94% strength solution, sold under the name "AMMONYX 4002" by ONYX - cationic emulsion DC 929, sold by DOW 30 30 CHEMICAL COMPANY 1.5 g - CELQUAT L 200 0.5 g - (cocamidopropyl)dimethylamine oxide in 35% strength solution, sold under the name "AMINOXID WS35" by GOLDSCHMIDT 8 g 35 35 - diethylenetriaminepentaacetic acid pentasodium salt g - hydroxypropylated guar gum, sold under the name "JAGUAR HP60" by MEYHALL 0.6 g 40 40 - tartaric acid qs pH 7.5 - perfume, preservative qs

This composition is used as a shampoo. It is applied on soiled, wet hair. After the hair is washed and 45 massaged for a few minutes, a second application is made and the hair is rinsed. The hair is then very easy to disentangle. The dried hair is supple, shiny, soft and easy to style.

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The examples which follow in the Tables are intended to illustrate other compositions according to the invention.

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|--|--|---|------------|----------|----------------------------------|-----------------------------------|--|----------|
| | | TABL | .E 1 | | • | | | |
| | Example No. | | 2 | 2 | 4 | | | |
| 5 | - lauric acid | | 2 3g | 3 3g | 4 | 5 | | |
| • | - oleic acid | | - - | - Sy | 3g | - | | |
| | - triethanolamine | | 4.94 | 2.5 | 4.94 | 4.5 | | |
| | coconut ethanolamide | ; | 1 | . 2 | 1 | 2.5 - | | |
| | dimethylbenzylsteary | ammonium | • | • | ' | - | | |
| 10 | chloride, in 94% stren | gth | | | | | | |
| | solution (AMMONYX | 4002 from | | | | | | |
| | ONYX) | | - | 1 | - | 1 | | |
| | - trimethyl(C ₂₀ -C ₂₂ alkyl |)- | | | | - | | |
| | ammonium chloride i | | | | | | | |
| 15 | strength solution (GEI | VAMINE | | | | | | |
| | KDM.F from HOECHS | Γ) | 1 | - | - | - | | |
| | - dimethyl(C ₁₂ -C ₁₄ dialky | /I)- | | | | | | |
| | ammonium chloride ii strength solution (NOI | 7 /5% | | | | | | |
| 20 | M2C from CECA) | AMMUM | | | | | | |
| .0 | - cationic emulsion DC 9 | 20 | | - | 1 | - | | 2 |
| | - CELQUAT L 200 | | 1.71 | 1.5 | 1.71 | 1 | • | |
| | - (coconut alkyl)amidopi | opyldi- | 0.4 | 0.3 | 0.4 | 0.4 | | |
| | methylamine oxide in | 35% | | | | | | |
| 5 | strength solution (AMI | NOXID WS | | | | | | |
| | 35 from GOLDSCHMID | T) | 8.55 | 7.5 | 8.55 | 5 | | 2 |
| | diethylenetriaminepen | taacetic | | | 0.00 | J | | |
| | acid pentasodium salt | | 2 | 2 | 2 | 2 | • | |
| | - hydroxypropylated gua | r gum | | | | _ | | |
| 0 | (JAGUAR HP60 from N | IEYHALL) | 0.4 | 0.2 | 0.4 | - | | 3 |
| | - tartaric acid | qs pH | 7.5 | 8 | 8 | 7.5 | | |
| | perfume, preservative | | qs | qs | qs | 7.5 qs | | |
| | - water | qs | 100 | 100 | 100 | 100 | | |
| 5 | | | | • | | | | 3 |
| Examp The f | ole 6 following dyeing composition is | orepared: | | | | | | |
| | , | | | | | | | |
| 1 | - lauric acid | | | | • | | | 4 |
| | - 2-amino-2-methyl-1-propa | nol | | | 2 | .89 | 9 | |
| | coconut ethanolamide | | | | 2 | | g | |
| | - AMMONYX 4002 (94% stre | ngth solution) | | | 1 | | g | |
| | - cationic emulsion DC 929 | | | | | 71 | g g | A |
| | - CELQUAT L 200 | | | | 0. | | g | 4! |
| | - hydroxypropylated guar gu | m JAGUAR HP 60 | | | 0. | | g | |
| | | -{β,α-dihydroxy- | | | | | <u></u> | |
| | - 2-(β-hydroxyethyl)amino-5 | | | | 0. | 09 | g | |
| | propyloxy)-1-nitrobenzene | المال من المالية | | | | | | E |
| | propyloxy)-1-nitrobenzene -3-methylamino-4-nitropher | ıyl β,α-dihydroxy- | | | | | | ວເ |
| | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether | • | | | | 04 | g | 50 |
| | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether - tartaric acid | qs | | | 0. pl | | g 8 | 50 |
| | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether | qs qs | | | pl | 4 | 8 | 50 |
| | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether - tartaric acid - perfume, preservative - water | qs qs qs | | | pł 10 | H H | 8 g | |
| This c | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether - tartaric acid - perfume, preservative - water composition is used as a "colouri | qs qs qs Qs | on light c | haetnu* | pł 10 | 100 | 8 g | 50 55 |
| This c exposur | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether - tartaric acid - perfume, preservative - water composition is used as a "colourice, rinsing and drying, shiny, soft | qs qs qs Qs | on light c | hestnut- | pł 10 | 100 | 8 g | |
| This c exposur which is | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether - tartaric acid - perfume, preservative - water composition is used as a "colourice, rinsing and drying, shiny, soft | qs qs qs ng balm". Applied hair is obtained, th | ie snade o | t which | pł 10 coloured possesse | d 00 I hair, at es golde | 8 g fter 15 minutes' en glints, and | |
| This c exposur which is Table | propyloxy)-1-nitrobenzene - 3-methylamino-4-nitropher propyl ether - tartaric acid - perfume, preservative - water composition is used as a "colourice, rinsing and drying, shiny, soft | qs qs qs ng balm". Applied hair is obtained, th | ie snade o | t which | pł 10 coloured possesse | d 00 I hair, at es golde | 8 g fter 15 minutes' en glints, and | |

| | 45 2 100 000 71. | | | | | | | |
|-----|---|------------------|---------------|-----------|-----------|-------------------|-----------|----|
| | • | TABI | .E 11 | | | | | |
| | Example No. | | . 7 | 8 | 9 | 10 | 11 . | |
| 5 | lauric acid 2-amino-2-methyl-1-propand | oi | 2 0.89 | 2 0.89 | 2 0.89 | 3 1.34 | 2 0.89 | 5 |
| • | - coconut ethanolamide | 5 1 | 2 | 2 | 2 | 2 | 2 | |
| | - AMMONYX 4002 (94% stren | gth | | | | | | |
| | solution) | | 1 | - | - | 1 | 1 | |
| 10 | GENAMINE KDM-F (80% street) solution) | engtn | - | 1 | | _ | - | 10 |
| | - cetylpyridinium chloride | | - | <u>:</u> | 1 | - | - | |
| | - cationic emulsion DC 929 | | 1.71 | 1.71 | 2.2 | 1.71 | 1.71 | |
| | - CELQUAT L 200 | | 0.4 | 0.4 | 0.7 | 0.4 | 0.4 | |
| 15 | hydroxypropylated guar gur JAGUAR HP60 | n | 0.2 | 0.2 | 0.1 | 0.7 | 0.2 | 15 |
| | - 3-methylamino-4-nitropheny | vI | 0.2 | 0.2 | 0.1 | 0.7 | 0.2 | |
| | β,α-dihydroxypropyl ether | • | <u>.</u> | 0.06 | 0.2 | - ' | - | |
| | - 3-nitro-2-aminophenol | | 0.05 | - | - | 0.05 | - | |
| 20 | - 3-nitro-4-aminophenol | | 0.025 | - | - | 0.025 | ·- | 20 |
| , | 4-(β-hydroxyethyl)amino-3- nitrophenol | | 0.01 | _ | 0.2 | 0.01 | 0.2 | |
| | - 1-methylamino-2-nitro-4-[m | ethvl | 0.01 | _ | 0.2 | 0.01 | 0.2 | |
| | (β-hydroxyethyl)amino]ben | | - | 0.1 | - | - | 0.1 | |
| 25 | | •• | _ | _ | _ | • | _ | 25 |
| | tartaric acid perfume, preservative | qs pH qs | 8 | 8 . | 8. | 8 | 8 | |
| | - water | qs qs | 100 | 100 | 100 | 100 | 100 | |
| | - shade (glints) | 4- | gol- | beige | cop- | gol- | dark | |
| 30 | | | den | | pery | den | auburn | 30 |
| | | | | | | | | |
| Exa | mple 12 | | | | | | | |
| | he following composition is prepar | ed: | | | | | | |
| 35 | | | | • | | | | 35 |
| | - lauric acid | | | | 3 | 3 g | | |
| | - sodium hydroxide | | | | |).64 g | | |
| | - coconut ethanolamide | | | | 1 | - | | |
| 40 | - dimethylbenzylstearylam | | | | | | : | 40 |
| | (AMMONYX 4002 from O | NYX) in 94% stre | ngth solution | on | | g | | |
| | - cationic emulsion DC 929 - CELQUAT L 200 | | | | | l.71 g).4 g | | |
| | - diethylenetriaminepentaa | cetic acid | | | Ì | ,. . 9 | | |
| 45 | pentasodium salt | - | | | 2 | g g | | 45 |
| | tortorio c-:-l | | | -U | _ | 7.0 | | |
| | - tartaric acid - preservative | as as | | pН | • | 7.8 | | |
| | - preservative - water | qs qs | | | 1 | 00 g | | |
| | | -1- | | | • | 5 | | E^ |

This composition is used as a shampoo.

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| | | | | | 100 000 7 | |
|---------|---|--------------------|----|------|-----------|----|
| Fxan | nple 13 | | | • | | |
| | e following composition is prepare | d: | | | | |
| | lauric acid | | | 3 | g | |
| 5 | - triethanolamine | | | 4.94 | g · | 5 |
| | coconut ethanolamide | | | 1 | g | - |
| | cocamidopropyldimethyla ("AMINOXID WS 35" from | Goldschmidt) | | | | |
| | in 35% strength aqueous s | | | 8.55 | g | |
| 10 | dimethylbenzylstearylamn (AMMONYX 4002 from On | | | | | 10 |
| | solution | | | 1 | g | |
| | - ucar silicone ALE 56 in 35% | strength | | | | |
| | solution | • | | 1.71 | g | |
| 15 | - CELQUAT L 200 | | | 0.4 | g | 15 |
| | - diethylenetriaminepentaac | etic acid | | _ | | |
| | pentasodium salt | | • | 2 | g | |
| | - perfume, preservative | qs | | | | |
| 20 | - tartaric acid | qs | рН | 7.8 | | 20 |
| | - water | qs | | 100 | 9 | |
| Thi | is composition is used as a shampo | 00. | | | | |
| 25 Exam | nple 14 e following composition is prepare | d. | | | | 25 |
| 111 | e ronowing composition is prepare | u. | | | | |
| | - lauric acid | | | 3 | g | |
| 30 | - triethanolamine | | | 2.5 | g | 30 |
| | coconut ethanolamide | | | 1 | g | |
| | - trimethylbenzylstearylamm | | | | | |
| | (AMMONIX 4002 from Ony | x) in 94% strength | | | | |
| | solution | | | 1 | g | |
| 35 | - cationic emulsion DC 929 | ablarida/aan/ | | 1.71 | g | 35 |
| | dimethyldiallylammonium amide copolymer of molec | | | | | |
| | greater than 500,000 (MER | | | | | |
| | Merck) in 8% strength solu | | | 1.25 | g | |
| 40 | - diethylenetriaminepentaac | | | | э | 40 |
| 40 | sodium salt | and adia pointa | | 2 | g | 40 |
| | - tartaric acid | as. | Hq | 7.8 | | |
| | - perfume, preservative | qs qs | рп | 7.0 | | |
| 45 | - water | qs | | 100 | g | 45 |
| 70 | ** | -1- | | | J | 40 |

This composition is used as a shampoo.

| £ | Example 15 The following composition is prepare | d: | | | | |
|----|--|---------------------|-----|-----------|----|----|
| 5 | - lauric acid - triethanolamine | | | 3 | g | 5 |
| | - thethanolamine - coconut ethanolamide | | | 4.94 1 | g | |
| | - cocamidopropyldimethylar | nine ovide | | • | g | |
| | sold under the name "AMII | | | | | |
| 10 | GOLDSCHMIDT in 35% stre | | | 8.55 | g | 10 |
| 10 | - trimethyl(C ₂₀ -C ₂₂ alkyl)amm | | | | 3 | 10 |
| | chloride (GENAMINE KDM | | | | | |
| | in 80% strength solution | | | 1 | g | |
| | cationic emulsion DC 929 | | | 1.71 | g | |
| 15 | - CELQUAT L 200 | | | 0.4 | g | 15 |
| | - hydroxypropylated guar gu | m (JAGUAR HP | | | | |
| | from MEYHALL) -tartaric acid | | 11 | 0.4 | g | |
| | -tartaric acid - diethylenetriaminepentaaci | qs | pН | 7.5 | | |
| | acid pentasodium salt | 5110 | | | | |
| 20 | acia pentasoaiam sait | | | 2 | g | 20 |
| | - perfume, preservative | qs | | - | 9 | |
| | - water | qs | | 100 | g | |
| 25 | This composition is used as a shampo | o. | | | | 25 |
| - | The following composition is prepared | d: | | | • | |
| 30 | | | | _ | | 30 |
| | - lauric acid - triethanolamine | | | 6 | g | |
| | - trietrianolamine - coconut ethanolamide | | | 5 1 | 9 | |
| | - dimethyldicetylammonium | chloride ("NORANII | IM | ' | g | |
| 35 | M2 SH" from Ceca) in 75% | | ••• | 1 | g | 35 |
| 33 | - cationic emulsion DC 929 | | | 1.71 | g. | 33 |
| | - CELQUAT L 200 | | | 0.4 | g | |
| | cocamidopropyldimethylan | | KID | | | |
| | WS 35" from GOLDSCHMII | OT) in 35% strength | | | | |
| 40 | solution | | | 8.55 | g | 40 |
| | - diethylenetriaminepentaace | etic acid penta- | | _ | | |
| | sodium salt | | | 2 | g | |
| | - perfume, preservative | qs | | | | |
| 45 | - tartaric acid | qs | pН | 7.8 | | 45 |
| 73 | - water | qs | - | 100 | g | |
| | | | | | | |

This composition is used as a shampoo.

| CD | 2 | 16 | 25 | 550 | Α . | |
|-----|---|-----|----|------|-----|--|
| (18 | 7 | 112 | 2 | וורר | ι Δ | |

| | | · | | * | | |
|--------------|--|---------------------|------|-------------|--------|-----|
| Exam, The | ole 17 following composition is prepare | d: | | ٠ | | |
| | | | | | | |
| 5 | - lauric acid | | | 3 | g | 5 |
| | triethanolamine cationic emulsion DC 929 | | | 2.5 1.71 | g g | |
| | - dimethyl-(a-gluconamidop | ropyl)hydroxyethyl- | | 1.71 | 9 | |
| | ammonium chloride ("CEF | RAPHYL 60" from Van | | | | |
| 0 | Dyk) in 60% strength soluti - "JR 400" from Union Carbi | | | 1 0.1 | g g | 10 |
| | - diethylenetriaminepentaac | • | | 0.1 | a | |
| | sodium salt | | | 2 | g | |
| 5 | - tartaric acid | qs | рН | 7.8 | | 15 |
| 5 | - perfume, preservative | qs | • | | | 13 |
| | - water | qs | | 100 | g | |
| This | s composition is used as a shampo | 00. | | | | |
| 20 Exam | -l- 10 | | | | | 20 |
| | following composition is prepare | d: | | | | |
| 25 | - lauric acid | | | 3 | g | 25 |
| 20 | - triethanolamine | | | 4.94 | g | 2.5 |
| | ucar silicone ALE 56 in 35% solution | strength | | 1.71 | g | |
| | - (C ₁₆ alkyl)dimethylhydroxy | ethyl- | | | 9 | • |
| 80 | ammonium chloride in 30% | 6 strength | | | | 30 |
| | solution - dimethyldiallylammonium | chloride homo- | | 1 | g | * |
| | polymer having a molecula | | | | | |
| | 100,000 ("MERQUAT 100" | from Merck) in | | 0.05 | | |
| 5 | 40% strength solution - diethylenetriaminepentaac | etic acid | | 6.25 | g | 35 |
| | pentasodium salt | | | 2 | g | |
| | - tartaric acid | 90 | pН | 8 | | |
| 0 | - perfume, preservative | ds ds | μπ | O | | 40 |
| | - water | qs | | 100 | g | |
| This | s composition is used as a shampo | 00. | | | | |
| 45 Exam | ple 19 | al. | | | | 45 |
| ine | following composition is prepare | a: | | | | |
| | - lauric acid | | | 3 | g | |
| 50 | - triethanolamine | | | 4.94 | g | 50 |
| | coconut ethanolamide dimethylbenzylstearylamm | onium chloride | | 1 | 9 | |
| | (AMMONIX 4002 from Ony | | | | | |
| | solution | | | 1 0.4 | g | |
| 55 | - CELQUAT L 200 - cationic emulsion sold und | er the name | | 0.4 | g | 55 |
| | "DOW CORNING Q2 7224" | by DOW | | 1.71 | g | |
| | cocamidopropyldimethylar ("AMINOXID WS 35" from | | | | | |
| 20 | 35% strength solution | Gordsonmat) in | | 8.55 | g | 60 |
| 60 | diethylenetriaminepentaac | etic acid penta- | | | • | 00 |
| | sodium salt | <u>:</u> | ml.f | 2 | g | |
| | tartaric acid perfume, preservative | qs qs | pН | 7.8 | | |
| 65 | - water | qs | • | 100 | g | 65 |
| 00 | | • | | | | 55 |

Example 20

12

The following composition is prepared:

| 5 | | | | | ٠ | 5 |
|----|---|------------|----|-------------------------------|------------------|------|
| 10 | lauric acid triethanolamine JR 400 from "Union Carbide cationic emulsion DC 929 distearyldimethylammoniu diethylenetriaminepentaace sodium salt | m chloride | | 3 2.5 0.05 1.71 1 | a a a a | . 10 |
| 15 | tartaric acidperfume, preservativewater | qs qs | рН | 8 100 | g | 15 |

This composition is used as a shampoo.

Similar results are observed for the compositions of Examples 12 to 20 as with that of Example 1. 20

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CLAIMS

- 1. Detergent cosmetic composition comprising in a cosmetically acceptable aqueous medium:
- 25 b) a silicone cationic polymer consisting of a polysiloxane in which one or more of the silicon atoms are substituted with an aliphatic amino group,

c) a cationic surfactant, and

d) a cationic polymer which is a cationic polysaccharide or a cationic cyclopolymer.

- 2. A composition according to Claim 1, wherein the soap is an alkali metal salt or an alkanolamine salt of 30 a C₁₂-C₁₈ fatty acid in which the fatty chain is saturated or unsaturated.
 - 3. A composition according to Claim 1 or Claim 2, wherein the soap is a salt of lauric, palmitic or oleic acid.
 - 4. A composition according to any one of Claims 1 to 3, wherein the silicone cationic polymer is either:
- i) a polymer of formula: 35

35 (1)40 40 . (CH₂)₃ 45 45

in which x and y are integers which depend on the molecular weight, which is approximately between 5,000 50 and 10,000.

or ii) a polymer of formula:

(II) $(R_1)_a G_{3-a} - Si - (-OSiG_2)_n - (OSi G_b(R_1)_{2-b}]_m O - Si G_{3-a}(R_1)_a$

55 in which G is hydrogen, phenyl, OH or C₁-C₈ alkyl, a denotes 0 or an integer from 1 to 3 and b denotes 0 or 1, 55 the sum n+m signifies an integer from 1 to 2,000, n denoting a number from 0 to 1,999 and m denoting a number from 1 to 2,000, R_1 is a monovalent radical of formula $C_qH_{2q}L$ in which q is an integer from 2 to 8 and L is selected from:

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20

35

45

in which R_2 denotes hydrogen or phenyl or benzyl groups, or a saturated hydrocarbon radical, and A^{Θ} 10 denotes a halide ion, or:

iii) a polymer of formula:

$$(R_{3})_{3} - Si - O = \begin{cases} R_{4} - CH_{2}CHOH - CH_{2} - N(R_{3})_{3}Q^{\oplus} \\ Si - O = Si - O \\ R_{3} \\ R_{3} \end{cases} Si - (R_{3})_{3}$$

$$(III)$$
15

 20° in which R_3 denotes a monovalent hydrocarbon radical having from 1 to 18 carbon atoms, R_4 denotes a divalent hydrocarbon radical, Q^Θ is a halide ion, r denotes an average statistical value from 2 to 20 and s denotes an average statistical value from 20 to 200.

5. A composition according to any preceding claim wherein the cationic surfactant is a compound of formula:

25 25

in which

(1) $R_{\rm 5}$ and $R_{\rm 6}$ denote methyl

and i) R_7 and R_8 denote a linear aliphatic radical,

or ii) R_7 denotes a linear aliphatic radical and R_8 denotes methyl or benzyl, or iii) R_7 denotes an alkylamidopropyl radical and R_8 denotes an alkyl acetate group,

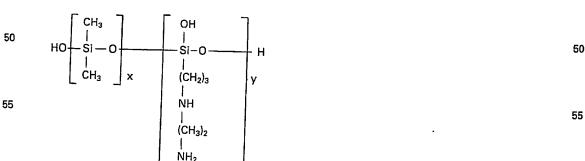
or iv) R_7 denotes a α -gluconamidopropyl or C_{18} - C_{18} alkyl radical and R_8 denotes a hydroxethyl, and x[©] denotes a halide or CH₃SO₄[©] anion;

or (2) R_5 denotes an alkylamidoethyl and/or alkenylamidoethyl group in which the alkyl radical having $_{40}$ from 14 to 22 carbon atoms is derived from tallow fatty acids, and $R_{\rm e}$ and $R_{\rm f}$ form with the nitrogen a 2-alkyl-4,5-dihydroimidazole heterocyclic system, 40

 R_{B} denotes methyl, and x^{Θ} denotes a methosulphate anion;

or (3) R_5 , R_6 and R_7 together with the nitrogen atom form an aromatic heterocyclic system, R_8 denotes a 45 C_{14} - C_{18} alkyl radical and x^{Θ} denotes a halide anion.

6. A composition according to Claim 5 comprising (a) a silicone cationic polymer corresponding to the formula



in which ${\bf x}$ and ${\bf y}$ are integers which depend on the molecular weight, which is approximately between 5,000 60 and 10,000.

5

(b) a compound corresponding to the formula:

10 where R₁ denotes a mixture of alkenyl and/or alkyl radicals having 14 to 22 carbon atoms and derived from tallow fatty acids, and (c) a compound of formula:

10

7. A composition according to any one of Claims 1 to 6, wherein the cationic surfactant is dimethylstearylbenzylammonium chloride, trimethyl-(C₂₀-C₂₂ alkyl) ammonium chloride, cetylpyridinium chloride, dimethyl (C₁₂-C₁₄ dialkyl) ammonium chloride, dimethyl(γ-gluconamidopropyl) hydroxyethylammonium chloride or dimethyldicetylammonium chloride.

15

8. A composition according to any one of Claims 1 to 7, wherein the cationic polysaccharide is:

20 a quaternary derivative of cellulose ethers, or a copolymer of cellulose or a cellulose derivative grafted with a water-soluble quaternary ammonium monomer.

20

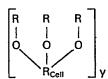
25

9. A composition according to Claim 8, wherein:

(1) the quaternary derivative of cellulose ether corresponds to the formula:

25

30



(V)

30

35

40

where R_{Cell} is the residue of an anhydroglucose unit, y is a number equal to between about 50 and 20,000 and each R individually denotes a substituent which is a group of general formula:

45

45

where

a is an integer equal to 2 or 3;

b is an integer equal to 2 or 3;

50 c is an integer from 1 to 3; m is 0 or an integer from 1 to 10;

n is 0 or an integer from 1 to 3;

p is 0 or an integer from 1 to 10;

q is 0 or an integer of 1;

55 R' is a hydrogen atom or a radical of formula:

50

60

55

it being clearly understood that when p equals zero R' denotes -H;

 R_9 R_{10} and R_{11} , taken individually, each represent an alkyl, aryl, aralkyl, alkylaryl, cycloalkyl, alkoxyalkyl or alkoxyaryl radical, each of the radicals R_9 , R_{10} and R_{11} being able to contain up to 10 carbon atoms, it being clearly understood that when the radical is an alkoxyalkyl radical there are at least two carbon atoms which separate the oxygen atom from the nitrogen atom, and it also being clearly understood that the total number

65

65

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35

45

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of carbon atoms present in radicals denoted by $R_{9},\,R_{10}$ and R_{11} is between 3 and 12;

or R_9 , R_{10} and R_{11} , taken together with the nitrogen atom to which they are attached, denote pyridine, α-methylpyridine, 3,5-dimethylpyridine, 2,4,6-trimethylpyridine, N-methylpiperidine, N-ethylpiperidine, Nmethylmorpholine or N-ethylmorpholine; X is an anion;

V is an integer equal to the valency of X;

the average value of n per anhydroglucose unit in this cellulose ether is between 0.01 and approximately 1, and the average value of (m+n+p+q) per anhydroglucose unit in this cellulose ether is between approximately 0.01 and approximately 4;

or (2) the copolymer of cellulose or a cellulose derivative grafted with a water-soluble quaternary ammonium monomer is a graft copolymer of hydroxyalkylcellulose with a methacryloyl trimethylammonium salt, a (methacrylamidopropyl) trimethylammonium salt or a dimethyldiallylammonium salt.

10. A composition according to any one of Claims 1 to 7, wherein the cyclopolymer has a molecular weight of between 20,000 and 3,000,000 and contains units of formula (X) or (X'):

15
$$(CH_2)\ell$$
 $(CH_2)\ell$ $($

in which 1 and t are equal to 0 or 1 and 1 + t = 1, R'' denotes hydrogen or methyl, R and R' denote 25 independently of each other an alkyl group having from 1 to 22 carbon atoms, a hydroxyalkyl group in which the alkyl group preferably has 1 to 5 carbon atoms, or a lower amidoalkyl group, or in which R and R' denote, conjointly with the nitrogen atom to which they are attached, heterocyclic groups which are piperidinyl or 30 morpholinyl groups, and optionally also contains units of acrylamide and diacetone acrylamide units, Y[⊙] being an anion chosen from bromide, chloride, acetate, borate, citrate, tartrate, bisulphate, bisulphite, 30 sulphate and phosphate.

11. A composition according to any one of Claims 1 to 10, which contains a nonionic surfactant.

12. A composition according to Claim 10, wherein the nonionic surfactant is a polyoxyethylenated or 35 polyglycerolated alcohol or alkylphenol.

13. A composition according to any one of Claims 1 to 12, which contains a fatty amine oxide of formula:

40
$$R_{19} \xrightarrow{R_{20}} N \rightarrow O$$
 40

in which R_{18} denotes an alkyl, alkenyl, C_{10} - C_{16} hydroxyalkyl or (C_{12} - C_{18} alkyl) amidopropyl group, and R_{19} and R₂₀, which may be identical or different, denote a methyl, ethyl, propyl, hydroxyethyl or hydroxypropyl 45 group.

14. A composition according to any one of Claims 1 to 13, wherein the soap is present in proportions of between approximately 1 and 8% by weight, the silicone cationic polymer is present in proportions of between 0.05 and 2.5% by weight, the cationic surfactant is present in proportions of between approximately 0.05 and 2.5% by weight, and the cationic polymer is present in proportions of between 0.05 and 5% by 50 weight.

15. A composition according to any one of the preceding claims wherein the composition contains: a) a compound corresponding to the formula:

b) a compound of formula: $C_8H_{17} - C_6H_4 - (OCH_2CH_2)_nOH$ where n = 40c) a compound of formula: 5 $C_{12}H_{25}$ -(OCH₂-CH₂)_nOH where n = 6 d) giycol in combination with the soap, the cationic surfactant 10 10 the cationic polymer. 16. A composition according to any one of the preceding claims, in the form of a liquid thickened to a greater or lesser extent, gel form or cream form, or packaged as an aerosol. 17. A composition according to any one of the preceding claims, comprising one or more perfume, 15 preservative, sequestering agent, thickener, emulsifier, emollient, foam stabiliser, acidifying or alkalinising agents as cosmetically acceptable adjuvants. 18. A composition according to any one of the preceding claims, comprising direct dyes selected from nitrated derivatives of the benzene series, azo, anthraquinone and naphthoquinone dyes, indoamines, 20 indoanilines or indophenols, present in proportions of between approximately 0.01 and 3% by weight. 20 19. A process for washing the hair, wherein at least one composition as defined in any one of Claims 1 to 17 is applied on the hair, and the latter is rinsed. 20. A process for colouring the hair, wherein a composition as defined in Claim 18 is applied on the damp hair and, after an exposure time sufficient to impregnate and colour the hair, the latter is rinsed with water. 25 ZI. Examples. 21. A composition according to Claim 1 and substantially as hereinbefore described with reference to the 22. A process according to Claim 19 and substantially as hereinbefore described with reference to the Examples. 23. A process according to Claim 20 and substantially as hereinbefore described with reference to the 30 Examples. 30

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